rays, and how easy to overlook the smaller ones. Couple with this the uncertainties expressed by Agassiz himself, and the fact that he had only one workable specimen, and I think we are fully justified in concluding that the supposed differences do not exist. It would be in a measure rather remarkable if they did.

An examination of all our Superior specimens of *Eucalia* fails to disclose, as mentioned before, anything whatsoever to distinguish them, or any of them, from *Eucalia inconstans*. Until better evidence is produced of its existence, therefore, we believe that *Eucalia inconstans pygmæa* Agassiz should be dropped from our list of North American fishes.

George Wagner
Wisconsin Geological and Natural History Survey,
May 1, 1910

THE GEOLOGICAL SOCIETY OF AMERICA ELEVENTH ANNUAL MEETING OF THE CORDILLERAN SECTION

The Cordilleran section of the Geological Society of America held its eleventh annual meeting at South Hall, University of California, Berkeley, March 25–26, 1910. As officers for the ensuing year were elected A. C. Lawson, chairman; G. D. Louderback, secretary, and H. F. Bain, councilor.

The following papers were presented and discussed:

The Limestone Plains of the Interior of Bahia: J. C. Branner, Stanford University, Cal.

Limestones, probably of Jurassic age, cover many thousands of square miles in the interior of Brazil, especially in the states of Bahia and Minas Geraes. In many parts of the same region valley floors are covered by recent limestone deposits spread out in horizontal sheets. These later limestones appear to be derived from the older ones by processes now in operation in the same region in modified form.

Geologic Work of Ants in Tropical Countries: J. C. Branner, Stanford University, Cal.

Work of considerable geologic importance is done in most tropical countries by certain ants and by what are popularly called white ants. The white ants are not ants at all, but belong to the Isoptera. The present paper gives the results of observations upon the abundance and habits of these insects, and the amount of earth moved by them in excavating their underground galleries.

Tables for the Determination of Crystal Classes: W. S. Tangier Smith, Reno, Nev.

This paper presents two different keys for the determination of crystals belonging to the thirty-two crystal classes, according to their morphology. One of these tables makes use of a center of symmetry as the basis for its main divisions, while in the other the center of symmetry is not considered. It is intended that in practical use one table may serve as a check upon the other. In the second table the classes are grouped in accordance with the classification recently proposed by Schwartz, while the class names are given according to both Krause and Dana.

The Occurrence of the Halogen Salts of Silver at Tonopah, Nev.: J. A. Burgess, Tonopah, Nev., and A. S. Eakle, Berkeley, Cal.

The occurrence was described of the chlorides, iodides, bromides of silver at Tonopah, and descriptions given of these minerals and associated minerals.

A New Development at the Mouth of the Mississippi: E. W. Hilgard, Berkeley, Cal.

This refers to the uprising of a serious obstacle to navigation outside of the Eads Jetties in the south pass, which has been made the mean outlet of the Mississippi and of navigation, on account of its being the only one of the Mississippi mouths showing no mud-lump activity. Professor Hilgard predicted, however, in 1869 that when the main current of the river was directed into the pass, such activity would begin within twenty to thirty years, as has now happened.

Contribution to the Geology of Eastern Oregon: E. L. Ickes, Berkeley, Cal.

A statement of the general stratigraphy and structural features of eastern Oregon with a more detailed discussion of certain formations and structures specially studied during a recent field trip in the east central part of the state.

California Earthquakes—A Synthetic Study of the Recorded Shocks: H. O. Wood, Berkeley, Cal.

A correlation of recorded shocks with the known faults of the region and especially with those suspected to show recent activity.

Secondary Pseudostratification in Santa Barbara County, Cal.: George D. Louderback, Berkeley, Cal.

There has developed in Tertiary friable massive

sands an appearance of beds and of stratification planes, caused by secondary agencies acting at or near the surface. The appearance was described and illustrated and probable causes discussed.

The Age of the Rancho La Brea Beds near Los Angeles: JOHN C. MERRIAM, Berkeley, Cal.

Notes on the Foundation of the Geological Society: C. H. HITCHCOCK, Honolulu, T. H.

A history of the efforts made to form a Geological Society during the years just preceding the establishment of the Geological Society of America.

Recent Faulting in Owens Valley, Cal.: WILLARD D. JOHNSON, Berkeley, Cal.

The topography of Owens Valley is strikingly immature. It is complex with arrested works of gradation. Deformation has varied as to the type, and the magnitude of its results, the seat of its action, and the periods of its recurrence and gradation, continually modeling toward symmetry again, has made record of the diastrophic events.

The Paragenesis of Minerals: AUSTIN F. ROGERS, Palo Alto, Cal.

Emphasizes the interest and importance of the occurrence, association and origin of minerals. Discusses the use of the term paragenesis. A university course along this line, in which paragenetic varieties of minerals are listed, correlates the facts of mineralogy and petrography and serves as an introduction to the study of ore-deposits.

Ruby Corundum from San Bernardino County, Cal.: GEORGE D. LOUDERBACK, Berkeley, Cal., and W. C. BLASDALE, Berkeley, Cal.

A hitherto undescribed locality recently called to the writer's attention shows the occurrence of corundum as an igneous secretion followed by a history of partial metamorphism, impregnation, brecciation and weathering of the enclosing rocks. The mineral is in part automorphic with very simple forms. The rock and its associations were described, and analyses presented.

Serpentines of the Central Coast Ranges of California: H. E. KRAMM, Stanford University, Cal.

The paper presents a brief history of the work done on the California serpentines. In particular it is a mineralogical and petrological description of serpentines and associated minerals in the central coast ranges of the state. The derivation of the serpentines from eruptive rocks was shown.

Some Topographical Features of the Western Side of the Colorado Desert: H. W. FAIRBANKS, Berkeley, Cal.

The San Jacinto Mountains send out a long spur southeastwardly into the western part of the Colorado Desert. This spur is known as the Santa Rosa Mountain. The accumulations of the desert appear to have been built up against the foot of this range as though it had undergone subsidence.

An arm of the Colorado Desert reaches in behind the Santa Rosa Mountain and this is known as the Borego Desert. At the western end of this desert close under the steep scarp of the Peninsula range, there is an alkali sink evidently due to subsidence of the desert.

At the end of the Santa Rosa Mountain where the Borego Desert opens out into the main Colorado Desert there are extensive beds of late Tertiary age. These have been folded slightly and subsequently planed off. Then an uplift took place and another partial planation occurred. Finally the beds were dissected and at their lower exposed margin eaten into by the waves of the ancient Salton Sea.

There followed a general discussion of the condition of seismological investigations in America and of the proposed establishment by Congress of a national bureau of seismology, and at the conclusion of the discussion the following resolutions were adopted.

The Cordilleran Section of the Geological Society of America favors strongly the establishment of a national bureau of seismology organized under the Smithsonian Institution with power (*a*) to collect seismological data, (*b*) to establish observing stations, (*c*) to study and investigate special earthquake regions within the national domain, (*d*) to cooperate with other scientific bodies and organizations and individual scientists in forwarding the development and dissemination of seismological knowledge.

It regards it of great importance that other scientific bureaus of the national government, in particular the U. S. Weather Bureau and the U. S. Geological Survey, be authorized by law to cooperate with this bureau in forwarding the purposes for which it may be established.

Resolved, that copies of this resolution be transmitted to the President, president of the Senate, speaker of the House of Representatives and members of the congressional committees now considering this matter.

GEO. D. LOUDERBACK,
Secretary, Cordilleran Section